Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): High-purity standard particle production apparatus comprising a particle generation chamber to generate high-purity particles by laser ablation in an ambient gas,

a particle classification chamber to classify high-purity standard particles of a diameter as required from said high-purity particles as generated at said particle generation chamber, [[and]]

a particle collecting chamber to collect said high-purity standard particles as classified at said classification chamber; and

a particle heating means positioned between said particle classification chamber and said particle collecting chamber;

wherein said particle heating means is adapted to heat the high-purity standard particles classified at said particle classification chamber by infrared radiation at a downstream position from said particle classification chamber,

so that high-purity standard particles of a comparatively large diameter which are non-spherical and are composed of a cohesive mass of particles having a smaller diameter than the cohesive mass is reshaped into high-purity standard particles~~to make spherical the high-purity standard particles having various shapes through cohesion~~, and ~~to improve~~ whereby the crystallization of the high-purity standard particles is improved.

2. (previously presented): The high-purity standard particle production apparatus according to claim 8 wherein a plurality of particle classification means are disposed in said particle classification chamber.

3. (canceled)

4. (previously presented): The high-purity standard particle production apparatus according to claim 1 wherein a gas refining means is provided to substantially remove impurities contained in a raw material gas supplied as said ambient gas.

5. (previously presented): The high-purity standard particle production apparatus according to claim 1 wherein an orifice is provided in said particle collecting chamber to

reduce a piping cross section through a passage course of said high-purity standard particles.

6. (canceled)

7. (previously presented): The high-purity standard particle production apparatus according to claim 1, comprising

a particle inflow pipe means connected between the particle generation chamber and the particle classification chamber for inducing a flow of the high-purity standard particles generated at said particle generation chamber to said particle classification chamber;

wherein the particle inflow pipe means has an equidistantly separated construction.

8. (currently amended): The high-purity standard particle production apparatus according to claim 7, wherein the particle classification chamber has a double cylindrical structure, the particle inflow pipe means extends from the particle generation chamber towards the particle classification chamber, and is equidistantly separated by~~from every~~ 90 degree angles into four divisions, and the particles are charged in a univalent flow into the particle classification chamber though the particle inflow piper means which is equidistantly separated at 90 degree angles into four

divisions, and the particles are supplied equally into the particle classification chamber such that the flow of particles is separated into four divisions.

9. (previously presented): A method of producing high-purity standard particles in an apparatus connecting a particle generation chamber to generate high-purity particles, a particle classification chamber to classify the high-purity particles generated at the particle generation chamber; and a particle collecting chamber to collect said high-purity standard particles as classified at said particle classification chamber in that order, comprising:

introducing a carrier gas of a low concentration of impurities into the particle generation chamber;

introducing a sheath gas into the particle classification chamber;

performing differential exhaustion of a gas exhaustion system of the particle collecting chamber and exhaustion of the gas exhaustion system of the particle classification chamber by controlling the exhausting actions such that the inside of the high-purity particle generation chamber is kept to a constant pressure;

introducing a pulse laser beam into the particle generation chamber and radiating the pulse laser beam to a target, and thus obtaining the high-purity particles;

introducing the high-purity particles into the particle classification chamber and classifying the particles into a substantially sole predetermined diameter to obtain the high-purity standard particles;

introducing the high-purity standard particles as classified in the particle classification chamber into the particles collecting chamber and collecting the high-purity standard particles;

wherein said classifying in the particle classification chamber is performed under conditions wherein the mass inflow rate of the carrier gas and sheath gas to be introduced into the particle classification chamber and mass outflow rate thereof are controlled such that those rates become equal.

10. (previously presented): The method of producing high-purity standard particles according to claim 9, further comprising electrically charging the high-purity particles generated at the particles generation chamber, and further classifying the charged high-purity particles by a differential electric mobility analyzer.

11. (previously presented): The method of producing high-purity standard particles according to claim 9, wherein the action of introducing carrier gas of a low concentration

of impurities into the particles generation chamber and the action of differential exhaustion of gas exhaustion system of the particle collecting chamber are parallelly performed in the radiation of the pulse laser beam to a target.

12. (previously presented): The method of producing high-purity standard particles according to claim 9, wherein in the collecting of the high-purity standard particles, the high-purity standard particles are carried through a nozzle into the particles collecting chamber, and collected by utilizing a difference between internal and outside pressures of the nozzle to improve the efficiency of collecting the high-purity standard particles into a substrate by virtue of inertial force inherent in the high-purity standard particles.

13. (previously presented): The method of producing high-purity standard particles according to claim 12, wherein in the process of collecting the high-purity standard particles, a bias voltage is applied onto the substrate.

14. (previously presented): The method of producing high-purity standard particles according to claim 13, wherein in the process of collecting the high-purity standard particles, the substrate onto which a bias voltage is applied is refrigerated.